mine if negative emotions and attitudes persist through training and into practice. The picture that emerges from these longitudinal studies may provide insights into the cause of these problems and directions for initiating interventions. For the present, supervising faculty and program directors should take note of the significant emotional changes that evolve in their interns and attempt to strengthen the positive aspects of the experience.

#### REFERENCES

- 1. Valko RJ, Clayton PJ: Depression in the internship. Dis Nerv Syst 1975; 36:26-29
- 2. Uliana RL, Hubbell FA, Wyle FA, et al: Mood changes during internship. J Med Educ 1984: 59:118-123
- 3. Friedman RC, Bigger JT, Kornfeld DS: The intern and sleep loss. N Engl J Med 1972; 285:201-203
- 4. Knaus WA, O'Leary DS: Analysis of a medical internship. J Med Educ 1975; 50:1033-1037

- 5. Hunter TH: How many hats can a house officer wear? N Engl J Med 1976; 294:608-609
  - 6. Cousins N: Internship: Preparation or hazing? JAMA 1981; 245:377
- 7. Girard DE, Sack RL, Reuler JB, et al: Survival of the medical internship. Forum Med 1980; 3:460-463
- Arthurson J, Mander-Jones T, Rocca J: What does the intern do? Med J Austr 1976: 1:63-65
- Borenstein OB, Cook K: Impairment prevention in the training years. JAMA 1982; 247:2700-2703
- 10. Afifi AA, Azen SP: Statistical Analysis: A Computer Oriented Approach, 2nd Ed. New York, Academic Press, 1979
- 11. Adler R, Werner ER, Korsch B: Systematic study of four years of internship. Pediatrics 1980; 66:1000-1008
- 12. Eron LD: Effect of medical education on medical students' attitudes. J Med Educ 1955; 30:559-564
- 13. Lesserman J: Changes in the professional orientation of medical students: A follow-up study. J Med Educ 1980; 55:415-422
- 14. Mawardi BH: Satisfactions, dissatisfactions and causes of stress in medical practice. JAMA 1979; 241:1483-1486
- Cherniss C: Professional Burnout in Human Service Organizations. New York, Praeger Publishers. 1980

# **Medical Practice Question**

EDITOR'S NOTE: From time to time medical practice questions from organizations with a legitimate interest in the information are referred to the Scientific Board by the Quality Care Review Commission of the California Medical Association. The opinions offered are based on training, experience and literature reviewed by specialists. These opinions are, however, informational only and should not be interpreted as directives, instructions or policy statements.

## Cytoxan Therapy for Multiple Sclerosis

### **QUESTION:**

Is Cytoxan therapy for the treatment of multiple sclerosis considered acceptable medical practice or should such therapy still be considered experimental?

### OPINION:

In the opinion of the Scientific Advisory Panel on Neurology, the use of the immunosuppressant drug cyclophosphamide (Cytoxan) for the treatment of multiple sclerosis is considered investigational. Reports of a recent controlled clinical trial indicate that short-term therapy with high doses of this toxic drug in combination with the adrenocorticotropic hormone (ACTH) can arrest the progression or even reverse the clinical symptoms in chronic, rapidly progressive multiple sclerosis. The effect has been temporary, however, lasting one to three years before progression of the disease recurs. Additional studies are in progress to determine whether patients will respond to a second course of treatment or whether retreatment will prevent late deterioration.

Because there are problems of immediate toxicity and the long-term effects of its use are unknown, investigators caution that cyclophosphamide should be used only under research protocol or in carefully selected patients who have not responded to conventional therapy and whose disease is progressing at a rapid and relentless rate. For such patients and their families, the risks and limitations of this form of treatment must be clearly understood.

Further controlled clinical trials with prolonged follow-up periods are required to document the safety and efficacy of cyclophosphamide before it can be considered accepted practice in the treatment of multiple sclerosis.